

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

Claims 63-76 are pending. Claims 63-76 stand rejected.

Claim 63 has been amended. Claim 76 has been cancelled. Support for the amendment is found in the specification, the drawings, and in the claims as originally filed. Applicants submit that the amendment does not add new matter.

Rejections Under 35 U.S.C. § 102(e)

Claims 63-76 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,255,703 of Hause, et al. ("Hause").

Hause states

In illustrative embodiments, the N.sup.- -doped (P.sup.- -doped) LDD regions 420 may be formed by being implanted with an LDD dose of arsenic (As, for N.sup.- -doping appropriate for an NMOS transistor 400) or boron difluoride (BF.sub.2, for P.sup.- -doping appropriate for a PMOS transistor 400).

(col. 4, lines 45-50)

The first dielectric spacers 545, like the dielectric layer 425, may be formed from a variety of dielectric materials and may, for example, be an oxide (e.g., Ge oxide), a nitride (e.g., GaAs nitride), an oxynitride (e.g., GaP oxynitride), silicon dioxide (SiO.sub.2), nitrogen-bearing SiO.sub.2, silicon nitride (Si.sub.3 N.sub.4), silicon oxynitride...

(col. 5, lines 63-67)

...in more detail below (see FIGS. 9-10), an RTA process to diffuse and activate the N.sup.+ -doped (P.sup.+ -doped) source/drain regions 755 may be performed in conjunction with a second...

(col. 6, lines 54-56)

The first conductive layer 940 may also be formed of a variety of materials suitable to form a high-temperature-stable, thin silicide that is also stable against agglomeration. Agglomeration is believed to be the tendency of some silicides, such as titanium silicide (TiSi.sub.2) and zirconium silicide (ZrSi.sub.2), to try to minimize their surface areas at high temperatures by balling up and forming spheres that increase the resistance of the agglomerated silicides. However, agglomeration is not believed to be present in

illustrative embodiments having silicidations that follow, rather than precede, dopant-activating RTA processes. The first conductive layer 940 may be formed by blanket-depositing metals such as titanium (Ti), zirconium (Zr), tungsten (W), tantalum (Ta), nickel (Ni), molybdenum (Mo) cobalt (Co), and the like, above the respective upper surfaces 430 and 435 of the doped-poly gate 410 and the N.sup.- -doped (P.sup.- -doped) LDD regions 420 and the N.sup.+ -doped (P.sup.+ -doped) source/drain regions 755, and adjacent the portions 555 of the dielectric layer 425 remaining on the sidewalls 830.

(col. 7, lines 34-52)

Applicants respectfully submit that claim 63, as amended, is not anticipated by Hause under 35 U.S.C. 102§(e).

Amended claim 63 includes the following limitations:

A microelectronic structure comprising:

a substrate;

a gate electrode formed over the substrate and defining an underlying channel region in the substrate, said gate electrode having a barrier layer formed on a sidewall of the gate electrode to prohibit the silicidation of the sidewall;

a source/drain extension formed in the substrate adjacent the gate electrode and encroaching laterally into the underlying channel region a first distance, the source/drain extension having a first silicide layer formed therein, the first silicide encroaching laterally into the underlying channel region a second distance less than the first distance; and

a source/drain region formed in the substrate adjacent the source/drain extension and having an activated doped region with a second silicide layer disposed therein, both the activated doped region and the second silicide layer are aligned with a spacer disposed along sidewalls of the gate electrode such that both the activated doped region and the second silicide layer encroach laterally into the underlying channel region a third distance due to alignment with the spacer disposed along the sidewalls, the third distance less than the second distance, said source/drain extension having less dopant concentration than the activated doped region.

(Amended claim 63(emphasis added))

Hause does not disclose that the activated doped region and the second silicide layer are both aligned with the spacer, such that they both encroach laterally into the underlying channel region a third distance. As shown in Hause, the source drain region 755 and the second silicide layer 1380 extend laterally the same amount. Each extends a distance that is less than the extent of the first silicide layer, but not the same (i.e., “a third distance”). This is due to how the layers are formed. In Hause, the source drain region 755 is formed prior to the first silicide layer and aligns with a first spacer. The first spacer is then removed and the first silicide layer is formed. Subsequently, a second spacer is formed and the second silicide layer is aligned with this spacer. So, although a cursory reading of Hause may indicate that Hause teaches that the source drain region and the second silicide layer could possibly extend the same distance, the source drain region and the second silicide layer are not aligned with the same spacer.

Moreover, Hause teaches away from the source drain region and the second silicide layer extending the same distance. Hause teaches that a minimum distance may be provided between the second silicide layer and junction 775 (i.e., junction between source drain 755 and the substrate 405). Hause states that such distance may be at least 50 angstroms. These statements together with Figure 13 indicate some distance, whether or not a minimum is specified.

For these reasons, applicants respectfully submit that claim 63, as amended, is not anticipated by Hause. Given that claims 64 – 75 depend from claim 63, applicants submit that claims 64 – 75 are, likewise not anticipated by Hause.

Rejections Under 35 U.S.C. § 103(a)

Claim 76 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,255,703 of Hause, et al. ("Hause") in view of U.S. Patent No. 6,049,114 of Maiti, et al. ("Maiti").

Applicants have cancelled claim 76.

It is respectfully submitted that in view of the amendments and arguments set forth herein, the applicable rejections and objections have been overcome. If there are any additional charges, please charge Deposit Account No. 02-2666 for any fee deficiency that may be due.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Date:

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By:



Tom Van Zandt
Reg. No. 43,219

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(408) 720-8598